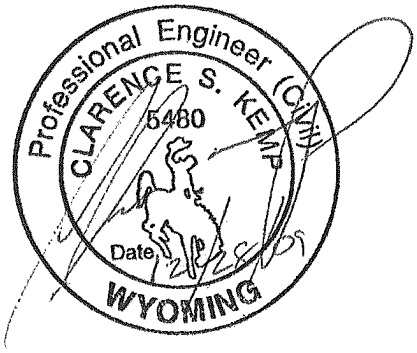
Star Valley Ranch
Steel Pipeline Replacement Project

Project Summary

Water Conservation, Energy Conservation, and System Reliability

December 2009



Prepared by:

FORSGREN Associates Inc.

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1.0 PROJECT OVERVIEW

The Star Valley Ranch development was initially developed during the early 1970's. By the mid 1990's, it consisted of 21 plats totaling 2034 lots.

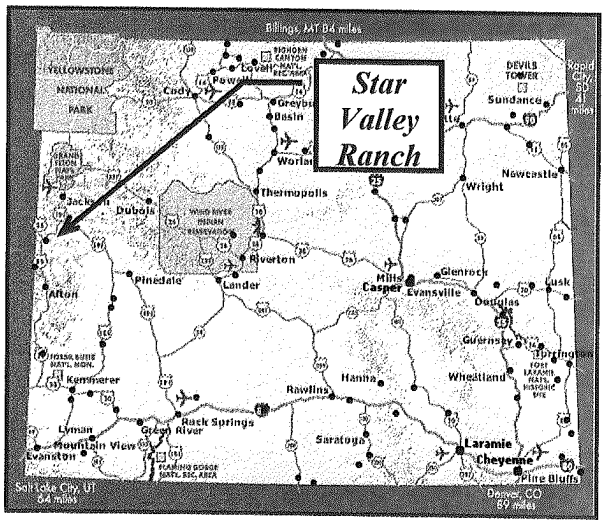


Figure 1 - Project Location Map

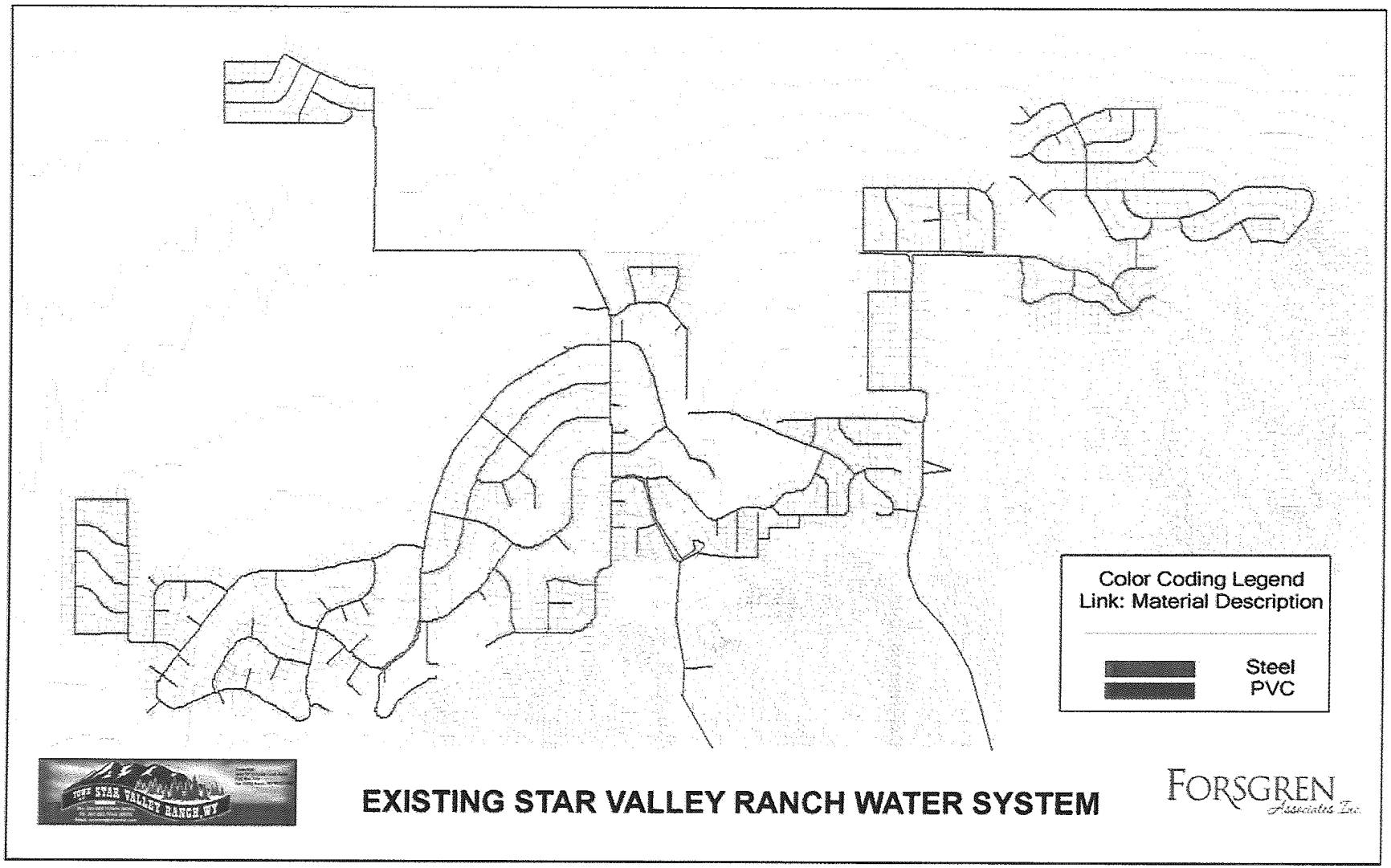
Over the past several years, the demographics of Star Valley Ranch has changed dramatically from a recreational community to a full-time residential community with over 1000 families. The residents of Star Valley Ranch overwhelmingly voted to form Wyoming's newest municipality in 2006.

The Town of Star Valley Ranch was formed, in large part, to provide the necessary legal vehicle and funding entity to address serious domestic water system problems. As a matter of public responsibility, the water system was purchased by the town from SVRA for a negotiated price of one dollar. It was recognized by the Town and the SVRA that the existing distribution system, while vital to the residents of Star Valley Ranch, also represented a serious contingent liability largely associated with deteriorated and undersized piping.

The single largest concern is associated with approximately 35,000 LF of older steel distribution piping. The distribution system was leak tested by Utility Services Group (USG) in late 2008. USG identified water losses due to leakage totaling 260,000 gallons per day or over 90 million gallons annually. Using that site-specific information, it was found that the areas of steel distribution piping represent 18% of the total piping and 90% of the identified system leakage. This steel piping also represents a disproportionate share of maintenance problems.

2.0 BASIS OF DESIGN

A Level I study of the Star Valley Ranch water system was completed in August of 2009 by Forsgren Associates for the Wyoming Water Development Commission. A second Level II study, focusing primarily on groundwater needs, was completed the following year. As part of those studies, the distribution system was inspected and modeled. System deficiencies based on DEQ Chapter 12 criteria were identified and specific recommendations made based on current and future peak demands. It should be noted that Star Valley Ranch is already fully platted. Projected demands, therefore, are driven by the Town's existing service obligations rather that future developmental growth.


Color Coding Legend
Link: Material Description
Steel
PVC
STAR VALLEY RANCH, WY
EXISTING STAR VALLEY RANCH WATER SYSTEM
FORSGREN Associates Inc

3.0 PROJECT DESIGN AND PERMITTING STATUS

The design of the Star Valley Ranch Steel Pipeline Replacement Project has been completed. An Application for Permit to Construct, along with project plans and specifications have been submitted to Wyoming DEQ for approval. Additionally, the project has been determined to be eligible by Wyoming DEQ for a Categorical Exclusion from the environmental process (and advertising completed) in the event that federal funding is used in construction.

The project specifications were assembled based on the possibility of using ARRA stimulus funding in the event that such funds become available. The overall estimated cost of the project (inclusive of construction engineering) is approximately $2.8 million. The project can easily be separated into multiple smaller projects or phases to accommodate lesser funding amounts as needed.

4.0 STAR VALLEY RANCH DOMESTIC WATER SYSTEM CONSUMPTIVE USE AND LOSSES DUE TO LEAKAGE

4.1 Star Valley Ranch Current and Projected Water Use: Present and future system demands are summarized in Table 1 below. These demands are based on monthly individual meter records. The SVR water system was only partially metered when these readings were taken. The Town is currently installing radio-read meters at all points of connection to the system. Hence the future metered condition reflecting reduced per-capita consumption is used for system design.

Table 1
Projected Domestic Water Demands

	ERU's	AVERAGE DAY		MAXIMUM DAY	
		gallons/conn/day	gpm	gallons/conn/day	gpm
Current System	1,000	466	324	2,100	1,458
Build-out	Approx. 2,000	466	647	2,100	2,916
Build-out with Metered System (30% reduction in max day use)	Approx 2,000	466	647	1,470	2,042

4.2 System Losses due to Leakage: The leak detection survey report completed by USG identified 259,580 gallons per day (180 gpm) in leakage losses. Of course, the Town has made efforts to repair more significant leaks where possible. However, these repair efforts are an endless endeavor and new leaks present themselves. It is notable that

91.4% of identified system leakage occurs in the areas of the steel distribution piping proposed to be replaced by this project.

4.3 Water Conservation Associated with Steel Pipe Replacement: As indicated above, the USG report identified distribution system leakage totaling 259,560 gallons per day (180 gpm) or about 95 million gallons per year. This is particularly significant given current water supply shortages. The Town's spring source(s) are simply not adequate to meet current or future demands, even without leakage. The Town currently relies on two additional wells of about 300 gpm capacity each. A third well has been funded by WWDC and will be construction in 2010.

It is notable that 91.4% of the leakage occurs in the steel piping areas proposed to be replaced by this project. The water savings associated with this project, therefore, are estimated to be 237,200 gallons per day (165 gpm) or 86.5 million gallons per year.

5 ENERGY SAVINGS ASSOCIATED WITH PROJECT

Water lost to system leakage must be made up through groundwater well pumping. If not corrected, this leakage will also likely require the construction of an additional well and pump house in the near future.

In accordance with the Lower Valley Energy rate structure, the current demand and energy rate schedule for three-phase power is: (1) an energy charge of $0.0327 per KW-hr and (2) and energy demand charge of $6.48 per KW if there is more than 50 KW for 15 minutes in any month.

Based on the existing SVR wells. The energy consumption per 1000 gallons is calculated to be 2.8 KWH. The energy consumption directly attributable to the steel pipeline leakage is calculated to be 2.8 KWH x 86,500,000 / 1000 = 242,200 KWH annually. This is based on a total dynamic head of 650 feet and an average pump efficiency of 73%.

6 FINANCIAL BENEFITS OF PROJECT

6.1 Steel Pipe Maintenance Concerns and Costs: Based on discussions with the Town Administrator and system operators, it is estimated that work on the steel pipe sections uses in excess of 30% of the water system maintenance (labor and materials) budget. This is, of course disproportionally high when compared to other parts of the system. The estimated total water budget dedicated to basic labor and system repairs is approximately $325,000. So, the annual steel pipe maintenance cost is estimated to be 30% of that amount or **$97,500 annually.**

6.2 Value of Water Conserved by this project: The Town of Star Valley Ranch is in the process of installing individual water meters. The Town

does not currently have the ability to charge for water based on metered use. Hence, the value of conserved water cannot be determined based on actual Town user rates. The value of water based on cost of production is approximately $0.50 per thousand gallons. This equates to an annual direct worth of $43,350.00. This value is on the low end of what most groundwater supplied communities charge for consumption in excess of their base rate (more typically $1.00 or more per 1000 gallons). The actual long-term value of the water is arguably much higher when considered in light of continued developmental growth and potential groundwater depletion in the valley. Every gallon of groundwater not pumped by the Town arguably benefits Lower Star Valley as a whole.

6.3 Estimated Value of Energy Conserved by this project: Annual power costs associated with leakage is estimated as follows:

Direct pumping power:	94.5 MG/1000 x 2.8KWH x .0327	= $8,652
Demand Charge	75 KW x $6.48 x 12	= 5,832
Misc Equipment (HVAC, etc)	$50/month x 12	= 600
Total Current Annual Cost		**$ 15,084**

6.4 Estimated Value of Capital Savings associated with this project - well: Based on the USG leak detection report, the system leakage associated with the steel distribution pipeline areas is about 165 gpm. Based on recent drilling experience in the area, we would anticipate a new well capacity of about 300 gpm. It is reasonable to assume, therefore, that the leakage represents a single well operating about 13 hours per day, 365 days per year. The capital cost of a new well, based is estimated as follows. This cost estimate was used for WWDC funding of the Town's next well.

Preparation of Final Plans and Specs		$ 48,100
Permitting and Mitigation		$ 10,000
Environmental Reporting		$ 7,500
Water Quality Testing		$ 5,000
Geohydrolgy Reporting		$ 10,000
Right-of-way Acquisition		$ 10,000
3 Phase Power to Site		$ 15,000
Pre-Construction Costs		$105,600
Well Drilling and Testing	$213,900	
Well Completion and Transmission	$267,100	
Construction Cost Subtotal #1		$481,000
Construction Engineering Costs = CCS#1 x 10% (minimum)	$ 48,100	
Subtotal #2		$529,100
Contingency = Subtotal #2 x 15%		$ 79,400
2010 Construction Cost Total		$608,500
2010 Total Project Costs		**$704,100**

6.5 Estimated Value of Well Maintenance Savings: Based on recent bid prices on the Town's Well #2, the pump and controller cost was $40,500 installed.

Realistically, we would not expect to be replacing the whole package on a regular basis. However, for the purposes of budgeting, it we can conservatively assume an overall life of 15 years or $2700 annually. There is also an inherent labor cost associated with well operation. Assuming a loaded cost of $20 per hour at 1 hour per day results in an annual labor cost of $7,300. So, the total estimated cost to maintain the well is approximately $10,000 annually.

6.6 Present Worth Value of Conservation resulting from this project : The present-worth value of the conservation and annual cost savings associated with this project are summarized in Table 2 below:

Table 2
Life Cycle Benefits of Proposed Project

	Est. Annualized Value of Conservation / Project Benefits	Est. Present Worth Value of Conservation / Project Benefits	Assumptions
Elimination of Well	$25,739	$704,100	*40 years - Interest 2% greater than inflation*
Maintenance of Eliminated Well	$10,000	$273,500	*40 years - Interest 2% greater than inflation*
Steel Pipeline Maintenance Savings	$97,500	$2,667,160	*40 years - Interest 2% greater than inflation*
Power Savings	$15,084	$628,400	*40 years- Energy Costs assumed to increase at 2% greater than inflation.*
Totals	**$148,323**	**$4,273,160**	
Financial Value of Water Conserved (Cost per 1000 gallons)	$1.71		